

FY 2019 Annual Report



Building the Advanced Energy Economy for Maryland

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The Maryland Clean Energy Center (MCEC) was created as an instrumentality of state by the Maryland General Assembly, in 2008, with an economic development mission to advance the adoption of clean energy and energy efficiency products, services, and technologies. MCEC also supports innovation and technology deployment to help achieve state renewable energy generation, energy conservation, and greenhouse gas emission reduction goals. MCEC uses statute enabled financing authority to leverage private capital investments and provide financing to assist residential, commercial, municipal, and not-for-profit consumers.



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College Park, MD 20740

MESSAGE FROM THE CHAIRMAN

Dear Reader,

As Chairman of the Board of MCEC, I have a front row seat to observe the evolution of the advanced energy economy in our state. I am pleased to share the attached report with you and to celebrate the progress made by the Maryland Clean Energy Center towards achieving its related mission throughout fiscal year 2019.

The MCEC team is dedicated to expanding the advanced energy economy in Maryland, and in this past year the Board of Directors targeted financial and personnel investments accordingly. We have focused on project finance and providing access to capital, with over \$40 million in bond transactions completed to date and over \$73 million in private capital leveraged for project financing since the inception of MCEC.

Maryland is one of few states in the nation offering commercial property accessed clean energy lending across the state. The MD-PACE program administered in Maryland by MCEC at the close of FY 2019 tracked over \$13 million worth of energy improvement projects funded with PACE financing since related enabling legislation passed in 2014. MCEC continued to participate in the Mid-Atlantic PACE Alliance, along with our counterparts in Virginia and the District of Columbia, to build consistent program models in the region and share case studies of the successful projects funded to date.

MCEC outreach and education events held in FY 2019 successfully convened thought leaders from across the region and the country to help envision the future of the energy sector, including the 2018 Maryland Clean Energy Summit and several Lunch & Learn events. Working with various partners throughout the year, MCEC enabled business development, serviced industry stakeholders, and provided technical resources for various consumer audiences. MCEC continues to watch and report on the policy & regulatory landscape to inform stakeholders about the decisions made with the potential to impact our industry.

MCEC relocated our offices to the Tech Ventures Building in College Park in March of 2019. With our brand-new space and proximity to our partners at the University of Maryland Energy Innovation Institute (MEII), the Board saw a need to focus some resources on commercialization of innovative new technologies certain to become mainstream applications in the grid of the future and help mitigate climate change. With that in mind, we launched the Maryland Energy Innovation Accelerator (MEIA) at the end of this fiscal year.

In FY 2019, the MCEC Board appointed a dynamic Advisory Council with members who have been actively engaged to identify opportunities and roadblocks that future initiatives might address. Their input will be instrumental to the creation of our strategic plan now underway and new finance programs to address the needs of underserved audiences are currently being envisioned for implementation in the future.

The investment in Maryland's energy future is important and the Board is pleased to report that the investment in MCEC is paying off.

Sincerely,



Geoff Oxnam
CEO, American Microgrid Solutions
MCEC Board Chairman





Geoff Oxnam
MCEC Board Chairman
Founder & CEO
American Microgrid Solutions

Michele Mitch-Peterson
MCEC Board Vice Chair
Account Executive
Siemens

Andrea Pelletier
MCEC Board Treasurer
Senior Vice President
Commercial Banking
Revere Bank

R. Michael Gill
Portfolio Manager
Cornerstone Advisory

Joshua Greene
Vice President
A.O. Smith Company

Dr. Alex Pavlak
Chairman
Future of Energy Initiative

Deb Risher
President, Owner
Belair Engineering

Dr. Eric Wachsman
Director
University of Maryland Energy
Research Center
William L. Creutz Centennial Chair in
Energy Research
University of Maryland
Director
Maryland Energy Innovation Institute
University of Maryland

Ex-Officio

Dr. Mary Beth Tung
Director
Maryland Energy Administration

EXECUTIVE SUMMARY

Throughout fiscal year 2019, MCEC focused resources on efforts related to finance, education, and innovation advancement. MCEC moved into new, more spacious office space in the Tech Ventures Building conveniently located near the University of Maryland campus in College Park, Maryland.

The finance team at MCEC expanded this year with the addition of a Bond Finance Manager to support transaction management activity for projects previously financed, and to help implement new financing solutions. In addition to the Maryland Clean Energy Capital Program (MCAP), which brings statute enabled bond issuance capacity to large scale project financing, MCEC continues to support the MD-PACE program to assist commercial property owners. In FY 2019, efforts were underway to reintroduce a leveraged lending program under the previous Maryland Home Energy Loan Program (MHELP) brand to provide access to capital for residential consumers in the state.

In outreach efforts, the organization continues to engage with a variety of stakeholders, tapping their input to help shape a strategic plan currently under development. In FY 2019, a dynamic group of individuals was appointed to the 2019 MCEC Advisory Council. They provided a diverse range of industry sector perspectives to help MCEC identify priority initiatives and develop future programming. External stakeholders were also engaged for educational offerings and research to shape financing programs.

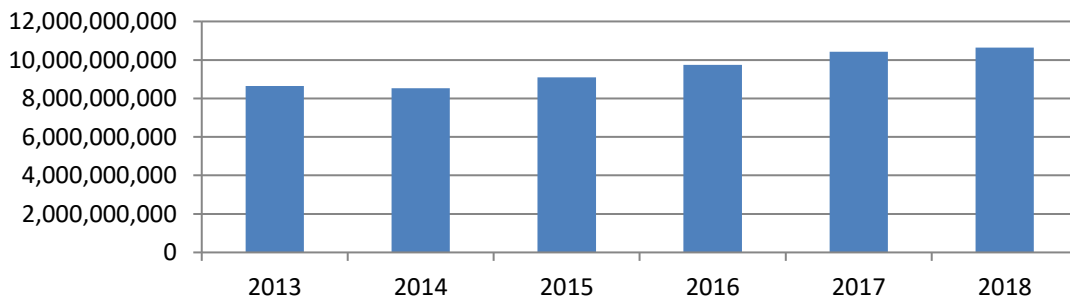
MCEC hosted several Lunch & Learn events and the 2018 Maryland Clean Energy Summit, a regional conference attended by speakers and stakeholders from all sectors of the energy economy. MCEC also served as a convener on energy related policy matters during the 2018 General Assembly session to inform its audience about current regulatory activity being considered by lawmakers.

The enabling statute for MCEC calls for the instrumentality to assist in the advancement of energy related research and technology. While there are currently limited funds to tackle this mandate, the MCEC Board launched the Maryland Energy Innovation Accelerator (MEIA), just prior to the close of FY 2019. MEIA has been created to pull energy related technological discoveries from Maryland-based research labs into the market as products, services and technologies. By wrapping qualified expertise and resources around these technologies, MEIA will help bridge the commercialization gap to encourage related job creation and manufacturing in Maryland.

In keeping with its mission, MCEC collects and reports on data indicative of the health of the energy sector in the state. Jobs data collected this period demonstrates a vibrant advanced energy economy has been growing in Maryland.

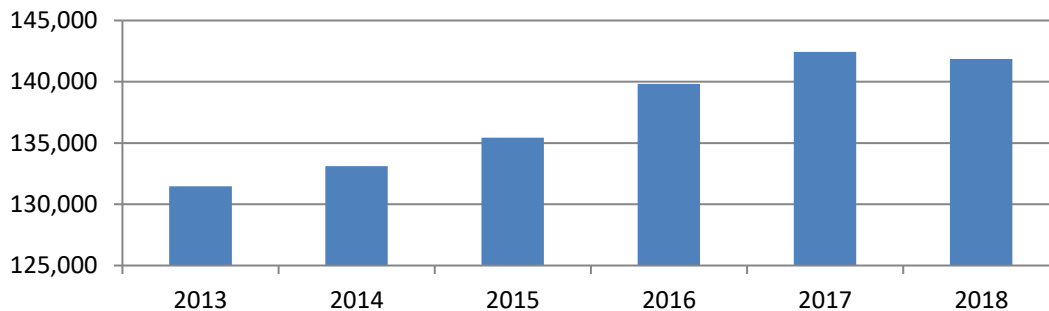
The 2018 MCEC Comparison Report shows that the collective annual earnings of all workers in the clean energy sector increased from \$8,645,594,320 in 2013 to \$10,640,029,576 in 2018. In comparison to 2013, the estimated total earnings in the Maryland clean energy sector increased by \$1,994,435,256 through 2018.

Total Sector Annual Earnings



In 2018, total sector-wide employment decreased by 569 workers statewide, while total sector annual earnings actually increased by a collective \$222,316,148. This situation is likely due to a high degree of market uncertainty and fewer federal programs available to support energy efficiency, solar energy, and wind power generation.

Total Sector Employment



FY 2019 ADMINISTRATIVE TEAM



I. KATHERINE MAGRUDER
EXECUTIVE DIRECTOR



WYATT A. SHIFLETT
DIRECTOR OF FINANCING PROGRAMS



SABRINA L. BACHMAN
COMMUNICATIONS DIRECTOR



DANTE M. MONAKIL
BOND FINANCE MANAGER



PAMELA R. POWERS
LEGISLATIVE AFFAIRS
& ADMINISTRATIVE MANAGER



DOROTHY KOLB
CONTROLLER



BRIAN TOLL
DIRECTOR
MARYLAND ENERGY INNOVATION ACCELERATOR



BEN MARGOLIS
COMMERCIALIZATION PROGRAM MANAGER
MARYLAND ENERGY INNOVATION ACCELERATOR

Counsel: W. DAVID RAWLE, Assistant Attorney General, Office of the Attorney General Department of Commerce

FY 2019 Policy Intern: MATHEW BARBER, University of Maryland College Park, '19

STAFF CAPACITY

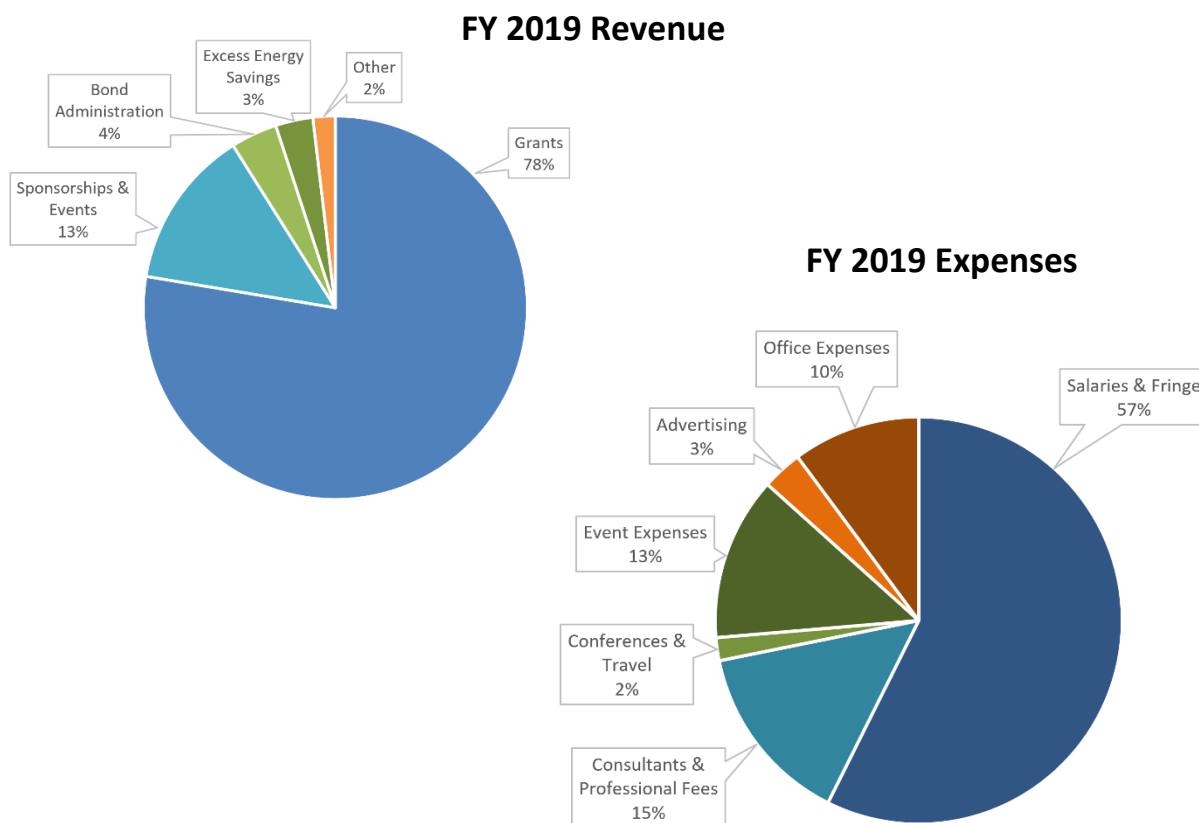
The Maryland Clean Energy Center operates with five full time and three contractual staff. This total includes a new Bond Finance Program Manager, hired in the fall of 2018. The position was created to facilitate MCEC bond issuance by connecting clean energy projects to appropriate funding sources for project development.

FUNDING SUPPORT & BUDGET

The Maryland Clean Energy Center continues to operate with a lean budget to accomplish its mission. The budget for MCEC in FY 2019 called for \$1,365,915 in overall operating revenue and \$1,274,258 in overall operating expenses. Sources of revenue for MCEC in FY 2019 included: grants, excess energy savings revenue, project fees, sponsor and event revenue, bond administration revenue, and miscellaneous earned interest income.

In FY 2019, a total of \$1,093,029 was incurred in operating expenses, with funds invested to support general administration, board activities, and operation of the Maryland Clean Energy Capital (MCAP) and Maryland Property Assessed Clean Energy (MD-PACE) programs, along with targeted education and outreach efforts.

Budgeted operating expense categories included: salaries and fringe benefits; consultants and professional fees; rent, phone, travel, and office expenses; IT services, printing, and publications; advertising, dues, and subscriptions.



A copy of the “FY 2019 Maryland Clean Energy Center Financial Statements June 30, 2019” can be found online at www.mdcleanenergy.org/about-mcec/enabling-statute/financial-statements.

OFFICE RELOCATION & OPEN HOUSE

In the spring of 2019, the Maryland Clean Energy Center relocated offices to the University of Maryland Tech Ventures Building in College Park. A networking reception and open house were held in May to announce the move, which allows MCEC to be more closely aligned in partnership with the Maryland Energy Innovation Institute and expand its capability to support advanced energy technology commercialization in the future. The increased space and central location in the state has already been beneficial for MCEC.

Attendees network at MCEC's Open House Reception in the new office located in the University of Maryland Tech Ventures Building.



L-R: Jason Stanek - Chairman of the Maryland Public Service Commission, Wyatt Shiflett - Director of Financing Programs for Maryland Clean Energy Center, and Landon Fahrig - Policy Manager for the Maryland Energy Administration

L-R: Brian Toll - Director of the Maryland Energy Innovation Accelerator, Michele Mitch-Peterson - Account Executive for Siemens & MCEC Board Vice Chair, and Dr. Mary Beth Tung - Director of the Maryland Energy Administration

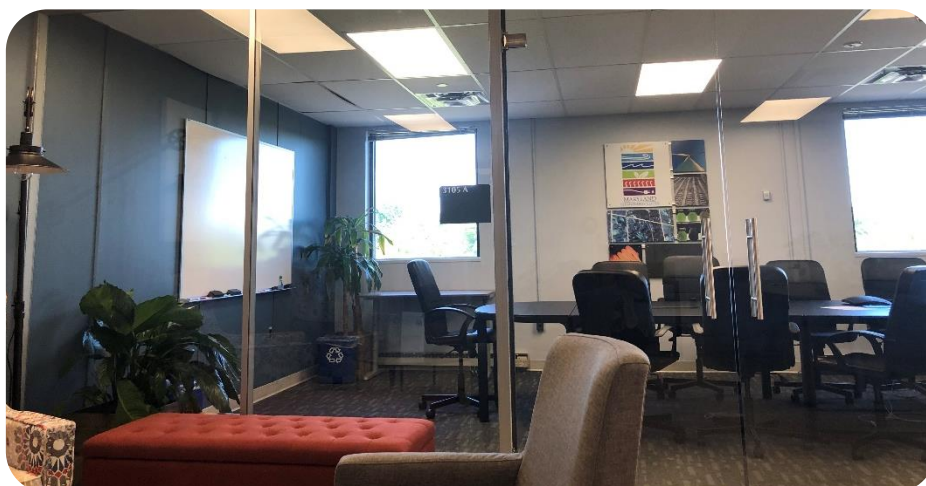
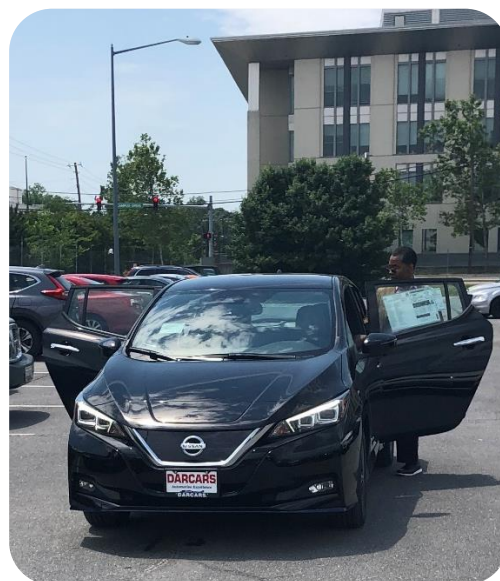


David Rawle - Assistant Attorney General, Office of the Attorney General Department of Commerce and Wyatt Shiflett - Director of Financing Programs for Maryland Clean Energy Center



2019 Nissan Leaf electric vehicles provided shuttle service between the Visitor Parking Lot and the Tech Ventures Building for MCEC's Open House.

Shuttle services and vehicle test drives were generously provided by Darcars Nissan of Rockville and Darcars Nissan of College Park.



STRATEGIC PLANNING PROCESS

As part of a strategic plan development process begun in FY 2018, MCEC continues to focus on defining its value proposition in the marketplace, and identify strategies that can be implemented to ensure future efforts are impactful and the organization is sustainable.

MCEC engaged two firms to assist the board and staff with efforts to create a “Strategy for Sustainability.” Not-for Profit Solutions helped examine the value proposition and market position for MCEC. Sustainable Capital Advisors has been retained to develop product recommendations and a business plan in response to a report directive given by the General Assembly as described below:

“Maryland Clean Energy Center shall establish a work plan to become self-sustaining within 5 years after the effective date of this Act using funding provided under this Act and other funding that the Center may obtain, and projected revenues from project financing activities of the Center under Title 10, Subtitle 8 of the Economic Development Article.”

The law directs MCEC to: “submit a report, which may be part of its annual report, on or before December 1, 2019, to the Governor and, in accordance with § 2–1246 of the State Government Article, the General Assembly on the Center’s:

- 1) progress since enactment of this Act to become self–sustaining with its current activities and funding and revenue levels; and
- 2) recommendations for changes, including additional necessary funding, to continue on the trajectory path to reach the goal to become self–sustaining within 5 years.

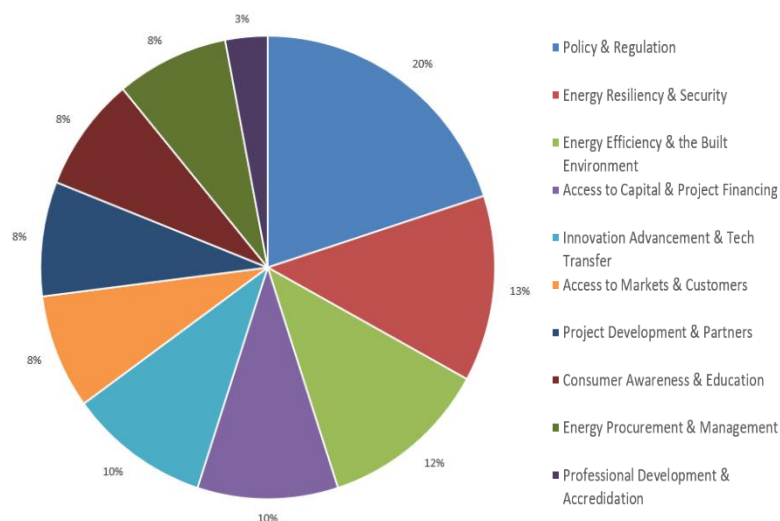
SB313 Maryland Energy Innovation Institute; Ch. 365

The strategic plan report will be delivered to the Governor and General Assembly before the end of 2019.

MCEC FY 2019 ADVISORY COUNCIL

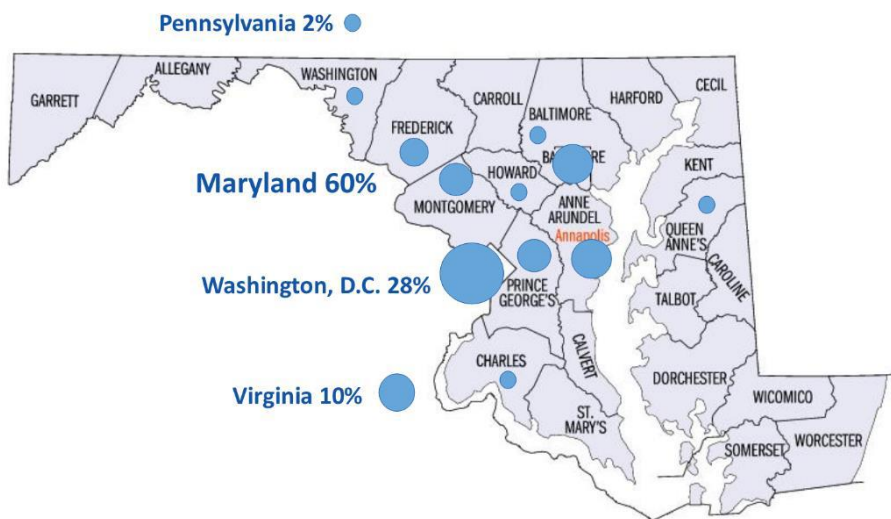
As per its enabling statute, the MCEC Board annually appoints a group of diverse stakeholders which provides guidance on policy priorities and activities of the center. The Advisory Council exists to develop a work plan for MCEC and set the framework for activity of the organization, advises the Executive Director, and informs the Board of Directors. This group of industry stakeholders evaluates issues, reviews proposed policy and regulatory matters, facilitates relationship building, and builds awareness of MCEC to encourage adoption of its mission. The Council identifies and works to remove barriers to success in the energy sector.

Advisory Council Member Areas of Interest



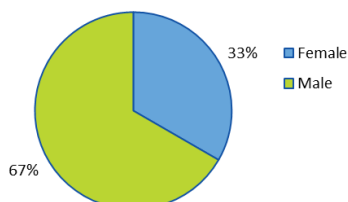
Advisory Council Demographics

Council Member Geographic Distribution*



**Geographic distribution based on preferred address provided by Advisory Council Members. Some are professional addresses and others are residential, or both.*

Council Member Gender Diversity



In FY 2019, fifty-one individuals were appointed serve on the 2019 MCEC Advisory Council.

The current roster can be viewed at www.mdcleanenergy.org/about-mcec/advisory-council.

Michael Aimone

Founder & Chief Data Officer
Energy Management & Analytics

David Bend

Energy Partnerships
Google

Daniel Bresette

Vice President for Policy
Alliance to Save Energy

Kevin Brown

Senior Partner
HOBBS & TOWNE

Paula Carmody

People's Counsel
Office of People's Counsel

Jessa Coleman

Programs Manager
Pace Financial Servicing

Albert Dellapenna

Sales Manager
SMO Energy

Keith Derrington

CEO
Recurrent Innovative Solutions

Michael Eckhart

Managing Director, Global Head of
Environmental Finance
Citigroup

William Ellis

Director Energy Efficiency
Pepco Holdings, An Exelon Company

Michael Giangrandi

CEO
AJ Michaels

Annie Gilleo

Senior Manager, State Policy
American Council for an Energy-Efficient
Economy

Robert Gorsuch

Manager
ESMEC - Energy Trust

Charles Hernick

Director of Policy and Advocacy
Citizens for Responsible Energy
Solutions Forum

Michael House

Vice President
AECOM

Mary-Ann Ibeziako

Director- Engineering and Energy
University of Maryland, College Park

Joanne Ivancic

Executive Director
Advanced Biofuels USA

Len Jornlin

CEO
Optimize Renewables

Pari Kasotia

Mid-Atlantic Director
Vote Solar

Andrew Kays

Deputy Director
Northeast MD Waste Disposal Authority

Richard Kilbourne

Senior Manager, Solar Business
Development
Constellation

Ozlem Kilic

Associate Dean, Academic and Student
Affairs - Tickle College of Engineering
University of Tennessee, Knoxville

Alex Kragie

Director
American Green Bank Consortium

Kevin Lucas

Director of Rate Design
SEIA

Arjun Makhijani

President
Institute for Energy & Environmental
Research

Markian Melnyk

President
Atlantic Grid Development LLC

Shannon Moore

Manager
Frederick County Office of Sustainability
and Environmental Resources

Nandini Mouli

President
eSai LLC

David Murray

Executive Director
MDV-SEIA

Katie Nash

Partner
Greenwill Consulting Group

Joseph Normandy

Executive Director
Maryland Building Performance
Association

Christopher Peoples

Managing Partner
Peoples Partners and Associates

Yvonne Porter

Electric Vehicle Operations Manager
Nissan North America

John Quinn

Director of Energy Policy
BGE

John Rezaiyan

Principal/President
3E Consulting LLC

Chris Rice

Chief of Staff
MD Energy Administration

Jerry Sanford

Economic Development Manager
Washington Gas a WGL Company

Adam Santry

President
Allied Well Drilling

Cherise Seals

Sr Account Executive
NORESCO

Alison Shea

Zone Sales Manager
Siemens Industry, Inc.

Grant Shmelzer

Executive Director
IEC Chesapeake

Tom Simchak

Director of Research
Energy Storage Association

Paul Spies

Program Manager Energy and
Agribusiness
MD Department of Commerce

David St. Jean

Director, Office of Energy Performance
MD Department of General Services

David Tancabel

Director
Power Plant Research Program

Brian Toll

Director
Carbon Technology Institute

Michael Tucker

President
Tuckers Air Conditioning, Heating &
Plumbing

Barbara Tyran

Exec. Director, Govt & External
Relations
EPRI

Lisa Walsh

Commercial Solar Developer
Solar Energy Services Inc.

Harry Warren

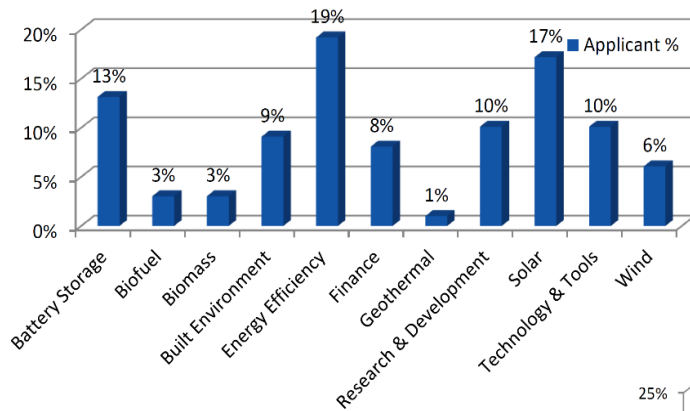
President
CleanGrid Advisors LLC

Joy Weber

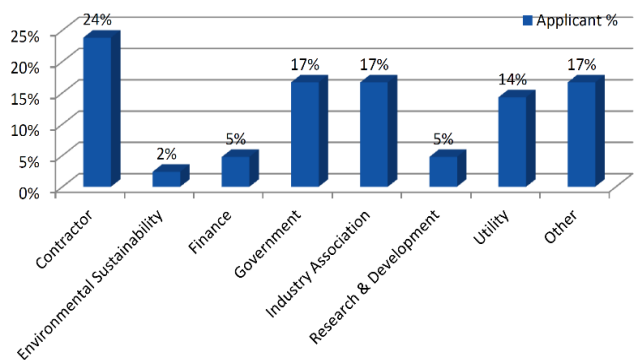
Development Manager
Orsted

Advisory Council Demographics

Industry Sector Representation



Company/Organization Type



MCEC hosted its annual Advisory Council Meeting in May. Attendees included 39 of the 2019 MCEC Advisory Council Members (or their representatives) and guest speakers.



During the meeting, Advisory Council members recommended the following priority areas for MCEC to address in future activities and initiatives:

Workforce Development

Community Energy Aggregation

Education of the General Public

Access to Data

Resiliency

Access to Capital

Clean Energy Access and Equity

**Providing a Convincing Argument for
Cost Benefits of User Fees on Utility Bills**

Enabling Policies for Project Implementation

Building Support for MCEC's Path to Success



Pictured from Left to Right: Andrea Pelletier - MCEC Board Treasurer, MD Delegate Dana Stein - Vice Chair of the House Environment & Transportation Committee, Michele Mitch-Peterson - MCEC Board Vice Chair, MD Delegate Tawanna Gaines - Vice Chair of the House Appropriations Committee, Katherine Magruder – MCEC Executive Director, Geoff Oxnam - MCEC Board Chairman, MD Senator Ben Kramer - Senate Finance Committee, and MD Senator Paul Pinsky – Chair of the Senate Education, Health & Environmental Affairs Committee, in attendance at the May 2019 MCEC Advisory Council Meeting.

INNOVATION ADVANCEMENT



In June of FY 2019, MCEC launched the Maryland Energy Innovation Accelerator (MEIA) to deliver on its mission to advance energy related research and technology commercialization.

MEIA will combine the expertise of Maryland inventors, researchers, founders, and entrepreneurs with strategic partners, local business executives, and service providers to further advance technologies while creating new, investible clean energy businesses. MEIA will facilitate early-stage technology commercialization in partnership with Maryland-based Universities and Labs to support Maryland's clean energy and climate goals. MEIA can support solar, wind, batteries, energy efficiency, grid modernization, carbon capture utilization and storage (CCUS), and any other technology that reduces greenhouse gas emissions or provides negative emissions benefits in the electric, oil and gas, residential, commercial or industrial sectors.

MEIA ADDRESSES TECH TRANSFER CHALLENGE

“Most faculty and scientist inventors do not have the time nor the desire to start companies. Some try to found companies but cannot overcome key challenges. Most don't attempt to found companies at all. This results in technologies never being commercialized.”

Brian Toll
Director, Maryland Energy Innovation Accelerator

By wrapping expertise around certain technologies with a team of MEIA mentors and advisors, an investible company will gain the momentum and credibility to obtain third party support to expand operations and build a market for evolving products, services, and technologies. Ultimately, through this approach, the state could benefit from business and job creation.

For more information about MEIA, visit www.mdeia.org.

ADVANCING ACCESS TO CAPITAL & FINANCE PROGRAMS

MARYLAND CLEAN ENERGY CAPITAL PROGRAM (MCAP)



MCEC continues to manage bond financed energy project valued at approximately \$40 MM.

The Maryland Clean Energy Capital Program (MCAP) provides access to private capital through the issuance of tax-exempt and taxable bonds. As a public instrumentality of the State of Maryland, MCEC is authorized by its enabling statute to be an issuer of tax-exempt debt for projects that support the advancement of clean energy, economic development, energy innovation, and related jobs creation in the State.

MCEC works with both public and private project development partners to provide advantageous financing, using its authority to issue tax-exempt and taxable bonds as well as own, operate, and lease assets.

In FY 2019, construction continues on two large energy efficiency projects funded in part with proceeds from MCEC bond issuances in a prior fiscal year. Bond proceeds and additional sources of capital will be used to fund over \$28,000,000 in energy efficiency capital projects at the University of Maryland, College Park and the University of Maryland, Institute of Bioscience and Biotechnology Research. These projects are anticipated to complete construction in FY 2020.



A site visit was held at the Institute for Bioscience & Biotechnology Research (IBBR) to review the status of the MCAP Project. James Johnson, IBBR Facilities Manager, points out buildings on the campus model that have been improved with MCAP investment to legislators during tour.

Pictured from Left to Right: Michele Mitch-Peterson - MCEC Board Vice Chair, MD Delegate Tawanna Gaines - Vice Chair of the House Appropriations Committee, MD Delegate Kumar Barve - Chair of the House Environment & Transportation Committee, MD Senator Brian Feldman - Vice Chair of the Senate Finance Committee, James Johnson - IBBR Facilities Manager, and Wyatt Shiflett - MCEC Director of Financing Programs



These two University System of Maryland projects are guaranteed to provide annual energy savings in excess of \$2,000,000 and upon completion the projects, coupled with MCAP projects previously completed, will provide MCEC customers with annual energy savings in excess of \$3,500,000. During FY 2019, MCEC began working on various energy efficiency and waste to energy transactions and is optimistic about issuing tax-exempt bonds to finance these developing projects in the future.

Cumulative MCAP bond issuance through the period ending June 30, 2019 is \$33,015,456 for tax-exempt bonds and \$5,090,243 for taxable bonds. Proceeds from the seven bonds and notes issued under MCAP were used to fund energy efficiency, mechanical equipment upgrades, and renewable energy production including capital improvements for lighting, HVAC, solar hot water heaters, boilers, chillers, building envelop renovations, water conservation measures, combined heat and power systems, demand response systems, construction management, capitalized interest, and cost of issuance.

MCAP REVENUES

Cumulative bond issuance and application fee revenue earned through the period ending June 30, 2019 was \$489,390, including bond issuance and application fee revenue in FY 2019 of \$5,000.

MCEC earns administrative fees for its role in managing the annual project cash flows to ensure timely debt services and vendor payments in addition to IRS post-issuance compliance measures and where applicable, energy savings measurement and valuation analysis. MCEC earns performance payments specifically for Energy Performance Contract financings where MCEC owns project assets that achieve energy savings in excess of the annual guaranteed savings amount.

Cumulative administrative and performance related fees earned through the period ending June 30, 2019 were approximately \$270,000.

Administrative and performance related revenue in FY 2019 was \$84,917 and represents an approximate 71% increase from the FY 2018 cumulative total.

MARYLAND PROPERTY ASSESSED CLEAN ENERGY (MD-PACE) COMMERCIAL LENDING PROGRAM



Since 2014, \$13.6 MM in C-PACE projects have been financed statewide. The current project pipeline indicates an increase of \$5 MM from FY 2018.

MCEC continued to enable access to affordable, 100% up-front capital to assist retail, commercial, industrial, agricultural, and not-for-profit property owners, through the MD-PACE (Property Assessed Clean Energy) Loan Program.

MD-PACE is administered through a partnership with Pace Financial Servicing, LLC and requires an enabling ordinance at the local level. MCEC worked with several counties and Baltimore City to facilitate the process of enacting local enabling ordinances and developing functioning PACE programs.

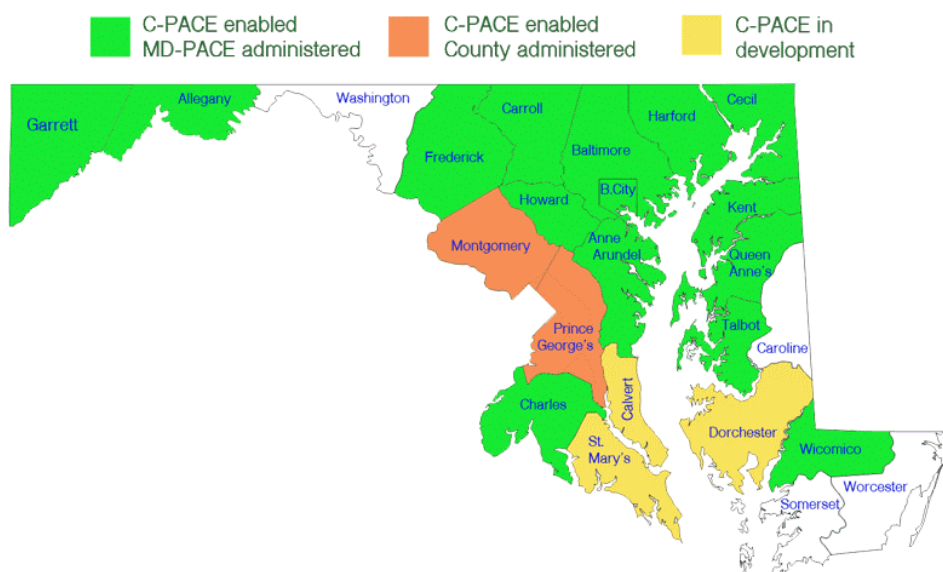
At the time of this report, 17 of the major jurisdictions had passed enabling ordinances, and 15 had program administration capability in place. Two additional counties- Montgomery and Prince George's Counties- are enabled with C-PACE programs, but are self-administered rather than part of the MD-PACE program. See Exhibit A.

Dorchester County was considering opting in to allow for C-PACE financing early in 2019, before recent elections. A potential C-PACE project in the City of Cambridge is driving a new look at adoption of an enabling ordinance by the County.

Following the re-registration update in FY 2019, the number of contractors participating in the program during the period was 40 and the number of eligible capital providers enrolled was 13, compared to 44 and 12, respectively, in FY 2018.

Ten PACE transactions closed under the MD-PACE program during FY 2019, totaling approximately \$5.2 MM in capital provided to commercial real estate owners for energy related capital improvements.

Exhibit A: MD-PACE Map of County Program Status



Since the introduction of PACE enabling legislation in 2014, over \$13.6 million in project financing has been recorded state wide, an increase of \$5 million from the \$8.6 million reported in FY 2018. Of the total amount in projects financed, approximately \$5.2 MM has been recorded for projects in the MD-PACE program affiliated jurisdictions. C-PACE has financed everything from major office buildings and medical centers to youth camps and small, main street businesses in the state of Maryland.

These investments are represented in 24 projects executed statewide, 12 within in MD-PACE program affiliated jurisdictions. Deal flow growth is projected in the pipeline for Q4 2019 and Q1 2020 with almost \$3 million in the pipeline expected to close imminently.

MID- ATLANTIC PACE ALLIANCE GRANT

In FY 2019, MCEC continued to represent Maryland as a partner in the Mid-Atlantic PACE Alliance (MAPA), along with the Virginia Department on Mines, Minerals and Energy (DMME) and the District of Columbia Department of Sustainable Energy & Environment. FY 2019 was the final year of a three-year grant from the U.S. Department of Energy, which will close in December 2019.



The group is striving to advance the development of standardized programs and ramp up the use of PACE financing in the region. As part of the strategy to maintain MAPA beyond the grant from the U.S. Department of Energy, the group has begun exploring the potential to create a 501(c)3 organization with engagement from current members and the involvement of additional regional stakeholders.

MAPA hosted a series of regional events throughout FY 2019, in addition to its 2018 Regional Forum (Details on page 24).

Case studies produced by the Mid-Atlantic PACE Alliance provide local examples of commercial property assessed (C-PACE) in action.

At the end of June, 2019, the MD-PACE program announced that the City of Baltimore had executed another commercial property assessed (C-PACE) financing project with a building of immense importance and historical significance: Brown's Arcade, located in downtown Baltimore at 322-328 N Charles Street, Baltimore, MD 21202. View the case study on page 19.



PROJECT OVERVIEW

PROPERTY TYPE:

Mixed-Use

INSTALLED MEASURES:

Automated Building and HVAC Controls, Building Enclosure/Envelope Improvements, Water Conservation Measures, Lighting Replacements



25 Years
Term



Greenworks Lending
Lender



GL Capital
Project Partner



MID-ATLANTIC
PACE
ALLIANCE
pacealliance.org

To learn more about MD PACE:
md-pace.com
info@md-pace.com

CASE STUDY:

BROWN'S ARCADE

HISTORIC PRESERVATION & ADAPTIVE REUSE



THE CHALLENGE:

Brown's Arcade is a mixed-use property encompassing retail and business offices. It was constructed in the early 19th century and is listed on the National Registry of Historic Places, in part due to its design which includes embellished Colonial Revival details. The project aims to develop multifamily apartments within the complicated layout and structure of the building. As the last known structure of its kind in the state, preserving the integrity of Brown's Arcade despite the new building's use was imperative.

THE SOLUTION:

According to Kelvin Fu, a Partner at GL Capital, C-PACE was used "to re-position and transform this historic building with new retail concepts and multifamily apartments in downtown Baltimore... This is our first-time utilizing C-PACE and we are delighted to have this building take part in such an extensive improvement, as it will function better and more efficiently, and allow for a cleaner, healthier environment."



MARYLAND
CLEAN ENERGY CENTER



PACE Financial
SERVICING

ABOUT MD-PACE

MD-PACE is a statewide partnership between PACE Financial Servicing and the Maryland Clean Energy Center to build a statewide commercial Property Assessed Clean Energy (C-PACE) program.

MARYLAND HOME ENERGY LOAN PROGRAM (MHELP) v 2.0

MCEC is dedicated to advancing more low-cost and transparent retail financing options. In FY 2019, the center dedicated staff resources in efforts to provide access to low cost capital at attractive interest rates to assist Maryland residents in affordably making more holistic energy efficiency home improvements.



Working in partnership with the Montgomery County Green Bank during FY 2019, MCEC participated in the EmPOWER Finance Work Group of Maryland's Public Service Commission (PSC) tasked with investigating the potential to offer consumers affordable financing for energy efficient measures. Building on experience gained by MCEC with the operation of the Maryland Home Energy Loan Program (MHELP) from 2011 to 2016, MCEC investigated new sources of capital to reintroduce a leveraged lending program to serve the residential consumer market sector.

To launch a new program, MCEC is proposing an off-bill consumer finance solution which combines private capital with EmPOWER rebates. The program has the potential to crowd in capital at an approximate 10:1 leverage ratio with no increase to the current ratepayer surcharge.

As part of the program development process, MCEC surveyed hundreds of HVAC and building performance contractors working in Maryland. Survey results helped to inform the EmPOWER Financing Workgroup about demand for residential financing offerings and how financing could impact customer adoption of energy efficiency home improvements.

According to survey respondents, only 23% of customers complete the majority of suggested energy conservation measures following an energy audit.

61% identified lack of access to financing as a barrier for customers when making energy efficiency improvements.

The full 2019 Maryland HVAC and Home Performance Contractor Survey Report can be viewed at: www.bit.ly/2019ContractorSurveyMCEC.

On July 11, 2019, in Order No. 89189, the PSC declined to adopt any specific financing program proposals at that time and directed the Finance Work Group to continue investigating financing options, to be considered for the 2021-2023 program cycle and to issue a report to them on or before September 1, 2020.

Using its available resources in FY 2020, MCEC is preparing to launch MHELP v 2.0 - a leveraged lending program targeted to assist residential property owners implement energy measures. The program is being designed to provide financing to the broadest range of consumers' credit scores at the lowest cost of capital available in the market.

STAKEHOLDER OUTREACH & EDUCATION

Outreach and education activities represent an important investment of resources by the center in efforts to build the advanced energy economy in Maryland. MCEC convenes stakeholders and industry leaders at conferences and forums, reports on policy activity that impacts the sector, and offers leadership perspective through participation in study work groups. In response to recommendation of the MCEC Advisory Board, targeted consumer education is also anticipated as an undertaking in the coming fiscal years.

In FY 2019, MCEC hosted the annual Maryland Clean Energy Summit and two informative Lunch & Learn events. Working with “More Power to You,” MCEC also produced a podcast series as part of National Clean Energy Week, featuring business and clean energy association leaders sharing their expertise and perspective on energy fields.

During FY 2019, preparations began for the 2019 Maryland Clean Energy Summit to take place at the College Park Marriott Hotel & Conference Center on October 22, 2019.

Throughout the 2019 General Assembly Session MCEC coordinated Policy Watch activities and weekly reports to keep interested stakeholders informed. Staff also participated in the Power Plant Research Program Energy Storage and Maryland Renewable Portfolio Standard Work Groups.

2018 MARYLAND CLEAN ENERGY SUMMIT



Over 300 individuals, representing 190 companies and organizations, attended the 2018 Maryland Clean Energy Summit. The two-and-a-half-day regional conference showcased cutting-edge technologies and services, modern business models, innovative regulations, and financing solutions with potential to ensure a secure, resilient, and transactive modern power grid. In addition to impactful breakout sessions and roundtable discussions, highlights included:

- Mid-Atlantic PACE Alliance Regional Forum, focused on Property Assessed Clean Energy (PACE) financing strategies (Additional details on page 24.)
- Keynote Address by Calvin Butler, Jr. CEO, Baltimore Gas and Electric Company (BGE)

“Made great contacts at the event, first day alone justified the time to attend a 3-day conference.”

2018 Maryland Clean Energy Summit
Attendee

- Awards Luncheon, address given by Vice Admiral Lee F. Gunn, USN (Ret.), Former Inspector General, The Department of the Navy; Vice Chairman, CNA Military Advisory Board; Chairman, The Gunn Group
- Innovation Exchange Contest sponsored by Siemens featured energy entrepreneurs and technologies under development



The Innovation Overview Panel featured (L-R): Ellen Williams, PhD - FMR Director, ARPA-E & Distinguished University Professor Dept of Physics and IPST, University of Maryland College Park; Norman R. Augustine - Retired Chairman & CEO, Lockheed Martin Corporation & Principal, American Energy Innovation Council; Joe Bryan - Principal, Muswell Orange; John Ellis - Digitalization Portfolio Manager, Siemens Smart Infrastructure; and Michael Nowak, PhD - Manager, University & National Lab Strategic Partnerships, National Energy Technology Laboratory



Below: Calvin G. Butler, Jr. - CEO of Baltimore Gas & Electric Company (BGE) provides Keynote Address at the 2018 MD Clean Energy Summit



Above (L-R): Mike Richard - Commissioner, MD Public Service Commission, Calvin G. Butler, Jr. - CEO, Baltimore Gas & Electric Company; Brian J. Feldman, MD State Senator, District 15; R. Michael Gill - Fmr. Secretary of Commerce, MD Department of Commerce; Geoff Oxnam - Board Chair, MCEC; Katherine Magruder - Executive Director, MCEC; and Ben Grumbles - Secretary MD Dept of the Environment; with Michele Mitch-Peterson - Board Vice Chair, MCEC, at the podium.

L-R: Ben Roush - Associate for FSi consulting engineers, Laura Van Wie McGrory - Vice President of Strategic Initiatives for Alliance to Save Energy, and Jamie Statter - Vice President for the U.S. Green Building Council participate on the breakout panel for Building Management & Systems Integration for Energy Efficiency.



Five individuals and four organizations received awards for their work to advance clean energy, energy efficiency and job creation in Maryland.

2018 MARYLAND CLEAN ENERGY AWARDS

- **Clean Energy Champion of the Year: Jeffrey W. Eckel - Chairman, President & CEO, Hannon Armstrong**, for making a lifetime commitment to the environment, working to reduce harmful greenhouse gases through technology and expand business innovations in the power sector.
- **Advocacy Award: Maryland State Delegate Luke Clippinger (District 46)**, for his long history of advancing clean energy policies in Maryland, including legislation that provides funding for an innovative, low-income solar financing program.
- **Partnership Award: Regional Manufacturing Institute of Maryland**, for making energy efficiency a key initiative for the Maryland manufacturing community by offering energy auditing and assistance to more than 200 regional manufacturers.
- **Innovator of the Year: FESCO Energy LLC**, for creating innovative software and customized algorithms that enable customers to buy energy with decreased operation risk and greater budgetary control.
- **Capital Partner of the Year: National Energy Technology Laboratory**, for providing significant capital and expertise to help bolster investment in Maryland clean energy companies.
- **Bright Light Award: GRID Alternatives Mid-Atlantic**, for removing barriers to success in the clean energy sector and making renewable energy technology accessible to more Maryland residents.
- **Special Recognition Awards: Janine A. Finnell - Executive Director, Leaders in Energy, and John Quinn - Director of Energy Policy, Baltimore Gas and Electric Company**, for their work to convene key stakeholders and facilitate partnerships.



*Innovator of the Year:
(John Dukes) FESCO Energy
of Frederick, MD*



*The Next Generation Scholarship
(provided by the Butz Foundation)
was presented to Tyler Rae, a
sophomore at the A. James Clark
School of Engineering, University of
Maryland, College Park, who is
working in a research laboratory to
improve the quality and safety of
solid-state lithium batteries. He plans
to study and enhance the materials
used in these and other renewable
energy sources.*

The closing day of the Summit featured the Innovation Showcase. This technology pitch event was designed to connect start-ups, experts, and investors to advance clean energy businesses. Selected contestants presented novel energy technology, services, and products with potential to provide clean energy and enhance energy efficiency, capacity, reliability, or safety. The pitches were judged by a panel of venture investors and potential funding organizations.



The review panel selected Ion Storage Systems to receive a \$5,000 award, courtesy of the Maryland Energy Innovation Institute. Ion Storage Systems is based in College Park, Maryland, and develops safe, high-performance solid-state battery storage technology.

MAPA FORUM AT THE 2018 MARYLAND CLEAN ENERGY SUMMIT

Over 100 people attended the Mid-Atlantic PACE Alliance (MAPA) Regional Forum, as part of a special pre-conference event at the 2018 Maryland Clean Energy Summit. Sessions focused on case study models of PACE projects for various property types, design and development considerations, and finance options for new construction versus adaptive re-use.



POLICY FOCUS

The 2019 Legislative Session of the Maryland General Assembly began with many newly elected Delegates and Senators taking their seats. Retirements and lost elections resulted in changes in leadership on several committees, specifically those that typically address energy policy and funding - House Economic Matters and Senate Finance.

MCEC staff tracked 63 pieces of legislation pertaining to the Clean Energy sector introduced during this session. Policy Watch reports were distributed weekly with hearing alerts shared via social media. Weekly conference calls for stakeholders were held by the MCEC legislative committee to share information about pending legislation.



2019 Maryland Policy Watch



View the MCEC Policy Watch Report for the 2019 MD Legislative Session:
www.bit.ly/MCEC2019PolicyWatch

In February 2019, MCEC hosted a policy focused Lunch & Learn event, themed “*Traversing the Energy & Climate Change Policy Landscape.*” Approximately 50 attendees participated in the session which focused on federal and state policy perspectives from guest speakers, including: Hon. Brian Feldman - Senator for MD Dist. 15, Landon Fahrig - Policy Manager for the Maryland Energy Administration, John Fiastro - Lobbyist for Greenwill Group, Jason Gleason - Executive Vice President for Crossroads Strategies, Charles Hernick - Director of Policy and Advocacy at Citizens for Responsible Energy Solutions (CRES) Forum, and Alex Kraigie - Director of the American Green Bank Consortium.



Above: Jason Gleason - Executive Vice President for Crossroads Strategies, Charles Hernick - Director of Policy and Advocacy at Citizens for Responsible Energy Solutions (CRES) Forum, and Alex Kraigie - Director of the American Green Bank Consortium answer audience questions.



L-R: John Fiastro - Lobbyist for Greenwill Group, Landon Fahrig - Policy Manager for the Maryland Energy Administration, and MD Senator Brian Feldman - MD Dist. 15 speak at MCEC Lunch & Learn Event.

Energy Performance Contracting Lunch & Learn

In partnership with the Maryland Department of General Services, Maryland Energy Administration, Maryland Department of Budget Management, and Maryland State Treasurer, MCEC hosted a Lunch & Learn Workshop for State agency representatives from upper management, fiscal offices, and facilities management. Representatives from Energy Services Companies (ESCOs) were also invited.

“Opportunities for Facility Improvement through Energy Performance Contracting,” was held on May 14, 2019, and attended by 65 Attendees representing 44 State Agencies & ESCOs.



Session speakers from L-R: Wyatt Shiflett - Director of Finance Programs, MCEC; Katherine Magruder - Executive Director, MCEC; Carissa Ralbovsky - Supervising Budget Examiner, MD Dept of Budget & Management; Ellington Churchill - Secretary, MD Dept of General Services (DGS); Christopher Russell - Program Manager State Buildings, Maryland Energy Administration; Christian Lund - Director Debt Management Division, MD State Treasurer's Office; Emily Soontornsaratool - Energy Data Program Manager, Office of Energy Performance and Conservation, MD DGS; David St. Jean - Director, Office of Energy Performance and Conservation, MD DGS



Wyatt Shiflett – MCEC Director of Finance Programs presents on project financing.

NATIONAL CLEAN ENERGY WEEK PODCAST SERIES

MCEC was an organizational partner for National Clean Energy Week 2018 (Sept 24-28, 2018) and developed a podcast series released with “More Power to You” (www.mptypodcast.com). The series focused on how clean energy creates jobs and promotes resiliency- disaster response through energy independence, and economic stability, with the following topic areas and guest speakers:

- **Bioenergy** with Shawn Kreloff - CEO of the Americas for BTS BioEnergy, and Andy Moss - Technical Director for Planet Found Energy Development
- **Electric Transportation** with Genevieve Cullen - President of the Electric Drive Transportation Association, Mahi Reddy - CEO of SemaConnect, and David Clamage - consultant to Generate Capital where he oversees day-to-day operations of customer finance offerings for BYD, the world’s largest electric bus maker
- **Offshore Wind Energy** with Liz Burdock - President and CEO of the Business Network for Offshore Wind
- **Distributed Energy Solutions** with Geoff Oxnam - CEO of American Microgrid Solutions and MCEC Board Chair, Eric Wachsman - Director of the University of Maryland Energy and Innovation Institute, CEO of Ion Storage Systems and MCEC Board Member, and Michele Mitch-Peterson - FMR Senior Business Consultant at Honeywell and MCEC Board Vice Chair
- **Solar Energy in Maryland** with David Murray - Executive Director of MDV-SEIA, Cyrus Tashakkori - President of Open Road Renewables, and Corey Ramsden - VP of Go Solar at Solar United Neighbors
- **Energy Efficiency in the Built Environment** with Nakita Reed - Principal at Encore Sustainable Design and Chair of the Maryland Green Building Council, Michelle Griffith - Manager at DeVere Insulation Home Performance and Chair of the Maryland Building Performance Association, and Michael Giangrandi - owner of A.J. Michaels Company and Chair of the Maryland Alliance of Energy Contractors



Distributed Energy Solutions panelists record with Josh Cohen – Host of “More Power to You,” for MCEC’s National Clean Energy Week podcast series.

PPRP (POWER PLANT RESEARCH PROGRAM) STUDY WORK GROUP PARTICIPATION

“PPRP shall conduct a study of the RPS... The study shall be a comprehensive review of the history, implementation, overall costs and benefits and effectiveness of the RPS in relation to the energy policies of the state.” - HB 1414

During FY 2019, MCEC staff participated on the Maryland Power Plant Research Advisory Committee as well as the Energy Storage and Renewable Portfolio Standard Work Groups.

MCEC FY 2020: INVESTING IN THE FUTURE

Looking ahead to 2020, MCEC is focused on investing in the future through innovation, infrastructure and partnerships. The center will continue to play its role as a unique funding authority and be engaged in building relationships with industry stakeholders. The board and staff will complete study efforts to deliver a report on the “Strategy for Sustainability of MCEC,” as directed by the Maryland General Assembly, with recommendations on investment needed for the instrumentality to be both impactful and sustainable in the future.

During the 2020 fiscal year, MCEC will maintain its capabilities to provide access to capital in the marketplace and provide technical support for pre-financing project development, while continuing to design and implement new program offering to address market gaps.

Outreach and Education events and activities are planned to increase during FY 2020 as MCEC seeks to broaden its capacity to support the evolution of the advanced energy ecosystem in the state.

Enabling innovation and technology commercialization is also on the MCEC agenda of priorities for FY 2020, as the center will continue actions to foster the success of the Maryland Energy Innovation Accelerator in the months ahead.

A digital version of the FY 2019 Maryland Clean Energy Center Annual Report is available for download at www.mdcleanenergy.org/about-mcec/enabling-statute/annual-reports.

Maryland Clean Energy Center

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